

Study of the Incidence, Risk Factors and Management of Ectopic Pregnancies in a Tertiary Care Centre

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Abstract

Background: Ectopic pregnancy is a life-threatening obstetric emergency quite often missed on diagnosis in young women. It is essential to be ectopic minded in the diagnosis of ectopic pregnancy. The incidence of ectopic pregnancies has increased due to early detection by ultrasound and making first trimester ultrasound as part of routine antenatal work up. Aim of this study to analyse ectopic pregnancies in a tertiary care centre and determine the incidence, risk factors, clinical presentation, management, morbidity and mortality of ectopic pregnancy.

Methods: From September 2024 to August 2025, the Obstetrics and Gynecology department at JLNMC, Bhagalpur, Bihar, conducted a retrospective analysis of ectopic pregnancies using a sample of 97 cases of probable ectopic pregnancies that were examined and treated.

Results: The incidence of ectopic pregnancy was 8 per 1000(0.81%) pregnancies, majority between the age of 20-30yrs (87.5%) and in higher order pregnancies (3 or >3 pregnancies) (50.4%). Risk factors were multiparity (50.5%), h/o infertility treatment (12.3%), and tubal sterilisation (7.2%). The typical triad of amenorrhoea, pain abdomen and bleeding p/v was observed in 69% of cases. In 16.4% cases the haemoglobin was <7gm% at presentation. Among 97 suspected cases of ectopic pregnancies, 90(92.7%) cases were found to have ectopic pregnancy. 27.8% of cases were presented in class 2 or more haemorrhagic shock. 79% cases were ruptured ectopic pregnancies. Ampullary ectopic pregnancies were predominant (62.9%) followed by cornual (14.6%) > fimbrial (13.4%) > ovarian (4.4%)> isthmus (2.2%). 2 women among 97 cases of suspected ectopic pregnancies were found to have Heterotopic pregnancy {tubal+intrauterine [missed abortion]}. Unilateral salpingectomy was done in 90.5% cases. Medical management was done successfully with single dose of methotrexate in 1 case. Blood transfusions were given in 69.9% cases. Post op wound complications were observed in 3.1% cases. Mortality is zero in present study.

Conclusion: For the purpose of to minimize maternal morbidity and mortality and improve treatment success rates, clinicians should be aware that any woman in the reproductive age group who presents with lower abdominal pain or vaginal bleeding should be suspected of having an ectopic pregnancy, regardless of whether she has undergone sterilization or not.

Keywords: Ectopic pregnancy, Risk factors, Salpingectomy, Pain abdomen, Tubectomy.

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Introduction

For women of childbearing age, ectopic pregnancy (EP) is a serious health issue. Although the prevalence of EP varies by population, it has been related to 1-2% of all pregnancies that have been reported. Therefore, diseases or treatments that can cause tubal injury are thought to be the primary risk factors for ectopic pregnancy.[1]

Previous ectopic pregnancy, tubal injury from surgery or infection (pelvic inflammatory disease), a history of infertility, in vitro fertilization therapy,

advanced age, and smoking all raise the risk. An episode of acute salpingitis increases the likelihood of an ectopic pregnancy seven times. This is especially true if Chlamydia trachomatis is the causative culprit.[2]

The fertilized ovum quickly burrows through the epithelium during tubal pregnancy because the fallopian tube lacks a submucosal layer. The rapidly expanding trophoblast invades the muscularis, where the zygote eventually lies. Tubal

rupture, tubal abortion, or pregnancy failure with resolution are possible consequences of this.

Amenorrhea, pain, and vaginal bleeding make up the traditional triad.[3]

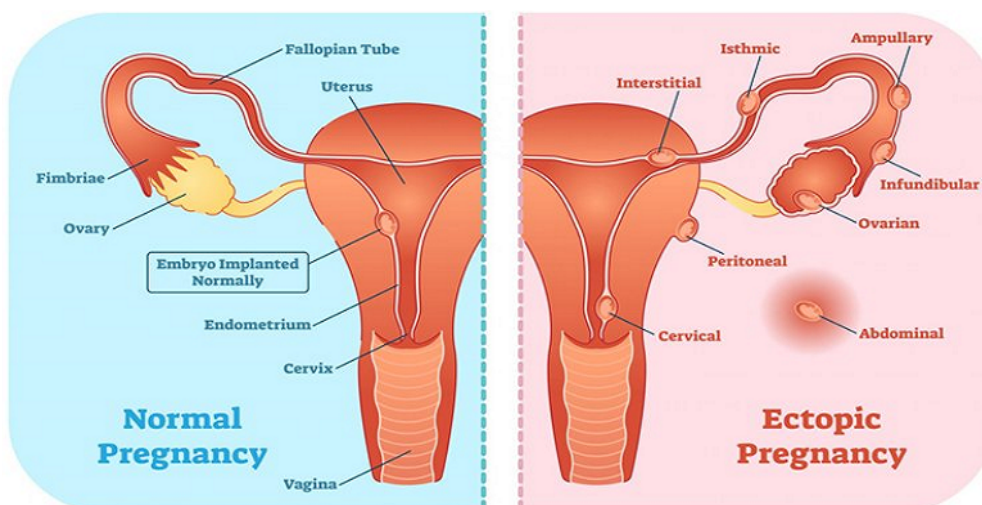


Figure 1:

Material and Methods

This Retrospective analysis of ectopic pregnancy was done in Obstetrics and Gynaecology Department of Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar from September 2024 to August 2025 with a sample of 97 cases of suspected ectopic pregnancy observed and treated, out of total 11252 pregnant women admitted, are included in this study. All intrauterine pregnancies and induced abortions were excluded.

After a detailed examination, a sample of blood was drawn for blood grouping, Rh typing and cross-matching to arrange blood for transfusion.

Investigations like Hb%, hematocrit, routine blood tests as advised by anaesthesiologists; TLC, DC, ESR if necessary; urine pregnancy test and ultrasonography were carried out.

Hemodynamically unstable patients were taken up for surgery and blood transfusion given as per need. As majority of the patients had ruptured tubal gestation, a decision for removal of the tube i.e., unilateral salpingectomy was made.

The data for all parameters were collected, tabulated, and frequency and percentage were analysed.

Results

There were 11252 pregnant women admitted to the hospital over the course of the one-year study period, and 90 of the 97 suspected ectopic pregnancies were confirmed to be ectopic pregnancies, yielding an incidence of 0.8% (8 per 1000 pregnancies). Two cases had negative laparotomies, one case had ovarian torsion, and four cases had ovarian cysts.

Table 1: Age of study population

Age (yrs)	No. of cases	Percentage
<20	4	4.1%
20-25	42	43.2%
26-30	43	44.3%
>30	8	8.2%

Majority of the patients (87.5%) belonged to the age group of 20-30 years.

Table 2: Gravidity

Gravidity	No. of cases	Percentage
PRIMI	22	22.6%
2 nd	27	27.8%
3 rd	28	28.8%
4 th	21	21.6%

In this study 77.4% were multigravida and 22.6% were Primigravida.

Table 3: Risk factors

Risk factors	No. of cases	Percentage
Multiparity	49	50.5%
Tubal sterilisation	7	7.2%
Infertility Treatment	12	12.3%
H/O pelvic infection	4	4.1%
No risk factors	25	25.7%

In present study multiparity (50.5%) appears to be a most common risk factor. In the present study the triad of amenorrhoea, pain abdomen, bleeding pv was seen in 69% of cases.

Table 4: Mode of presentation

Presentation	No. of cases	Percentage
Amenorrhoea	81	83.5%
Pain abdomen	97	100%
Bleeding PV	67	69%

Out of 96 cases managed surgically, ultrasonography findings of 87(90.6%) cases correlated with laparotomy disparity between ultrasonography and laparotomy findings. UPT was positive in all ectopic pregnancies. False positive UPT was observed in 7 cases. 50%(1) cases of

isthmus ectopic pregnancies, 30.7%(5) cases of cornual ectopic pregnancies, 26.6%(4) cases of fimbrial ectopic pregnancies, 20.7%(11) cases of ampullary ectopic pregnancies were presented with severe anaemia.

Table 5: Haemoglobin at presentation vs site of ectopic haemoglobin

Site of ectopic	>11gm%	9-10.9gm%	7-8.9gm%	4-6.9gm%	<4gm%	P-value
Cornua (13)	1(7.8%)	3(23%)	6(46.2%)	3(23%)	-	0.68
Isthmus (2)	-	1(50%)	-	1(50%)	-	
Ampulla (57)	10(17.5%)	27(47.3%)	10(17.5%)	9(15.7%)	1(1.7%)	
Fimbria (12)	3(25%)	3(25%)	4(33.3%)	2(16.7%)	-	
Ovary (4)	-	1(25%)	3(75%)	-	-	
Heterotopic (2)	-	1(50%)	1(50%)	-	-	

P-value for the (Table 5) comparison is 0.68 which is statistically non-significant.

Among 97 suspected ectopic pregnancies, intraoperatively, 89(92.7%) cases were found to have ectopic pregnancies, 4(4.2%) cases were found to have simple or haemorrhagic ovarian cyst, 1(1.04%) case was found to have ovarian torsion, 2(2.08%) cases were found to have negative laparotomy. (Table 6)

Table 6: Intraoperative findings (Out of 97 suspected cases 96 managed surgically)

Intraoperative findings	No. of cases	Percentage
Ectopic Pregnancies	89	92.7%
Haemorrhagic ovarian cyst/Simple ovarian cyst	4	4.2%
Ovarian torsion	1	1.04%
Negative laparotomy	2	2.08%

In present study ampulla is the common site of ectopic (62.9%). (Table 7)

Table 7: Site of ectopic pregnancy (89) (based on intraoperative findings)

Site of ectopic	No. of cases	Percentage
Ampulla	56	62.9%
Fimbria	12	13.4%
Cornua	13	14.6%
Isthmus	2	2.2%
Ovary	4	4.4%
Heterotopic	2	2.2%

In present study ruptured tubal ectopic pregnancies were found in 79% of cases and unruptured tubal ectopic pregnancies in 21% of cases. (Table 8)

Table 8: Laparotomy findings in tubal ectopic pregnancies (86)

Condition of tube	No. of cases	Percentage
Rupture	68	79%
Unrupture	18	21%

In present study, >750ml blood loss (class II, III, IV haemorrhagic shock) was seen in 50% cases of isthmic ectopic pregnancies, 46.7% cases of cornual ectopic pregnancies, 33.4% cases of fimbrial ectopic pregnancies, 26.7% cases of ampullary ectopic pregnancies, 25% cases of ovarian ectopic pregnancies.(Table 9)

Table 9: Site of ectopic vs average blood loss

Site of ectopic	Upto 750ml	750ml-1500ml	1500ml-2000ml	>2000ml	P-value
Cornua (13)	7(53.9%)	2(15.4%)	3(23%)	1(7.7%)	0.46
Isthmus (2)	1(50%)	-	1(50%)	-	
Ampulla (56)	41(73.2%)	9(16%)	5(8.9%)	1(1.7%)	
Fimbrial (12)	8(66.6%)	2(16.6%)	1(8.3%)	1(8.3%)	
Ovarian (4)	3(75%)	1(25%)	-	-	
Heterotopic (2)	2(100%)	-	-	-	

P-value for the Table 9 comparison is 0.46 which is statistically non-significant. Most common procedure done was unilateral salpingectomy (63.5%) one case was managed medically and successfully with single dose methotrexate.(Table 10)

Table 10: Surgical procedure done (96)

Procedure	No. of cases	Percentage
U/L salpingectomy	61	63.5%
U/L salpingo-oophorectomy	3	3.1%
U/L salpingectomy+R/L tubectomy	23	23.9%
B/L salpingectomy	1	1.04%
R/L oophorectomy	2	2.08%
R/L ovariectomy	4	4.2%
Negative laparotomy	2	2.08%

In present study incidence of blood transfusion, postop wound complications was noted in 65.9%, 3.1% cases respectively. Mortality was zero in this study.(Table 11)

Table 11: Morbidity and mortality associated with ectopic pregnancy

Blood Transfusion	65.9% (64)
Post-op wound complications	3.1% (3)
Mortality	0

Discussion

In the present study, majority of the women belonged to the age group of 20-30 years (87.5%) which is close to the studies done by Samiya Multi et al (75.4%),[4] Panchal D et al (71.66%),[5] Gaddagi et al 70.2%],[6] Sudha et al study (67.54%),[7] Chate, et al study(70.96%).[8]

We observed maximum incidence of Ectopic pregnancy was in multigravida i.e., 77.4% followed by primigravida i.e. 22.6%. This correlates with the studies done by Shraddha Shetty K et al. (83.9%),[9] Panchal D et al(81.66%)[5] Poonam et al. (83.6%),[10] Sudha, et al i.e.(82%).[7]

In present study, abdominal pain was present in 100% cases and amenorrhoea in 83.5% cases and bleeding pervaginum in 69% cases. Shetty S et al[9] observed the commonest symptoms were abdominal pain (80.6%), amenorrhoea (77.4%) and vaginal bleeding (61.3%) Gaddagi et al[6] observed that a majority of the cases presented with pain

abdomen (89.2%), amenorrhoea (75.7%), spotting pv in 43.2%. Chate et al[8] study observed pain abdomen in 92.47% cases and amenorrhoea in 77.4% cases and bleeding pv in 58% cases. Sudha et al[7] observed amenorrhoea in 82.4% cases, pain abdomen in 78.5% cases bleeding pv in 63.3% cases. Urine pregnancy test was positive in 92.7% of the cases which correlated with the study done by Sudha et al,[7] Rashmi A Gaddagi, et al (97.3%)[6] and WM Fgeeh(96%).[11]

In present study, 12.3% of women with ectopic pregnancy were infertile which is correlating with the studies done by Panchal D, et al (11.66%),[5] Samiya Mufti, et al (8.77%),[4] Sudha et al(7.01%),[7] Chate et al(20.43%).[8]

In present study group, 7.2% of the women with ectopic pregnancy had tubal sterilization which correlates with the studies done by Uzmashabab, et al (5%),[12] Shrestha et al. (5%),[13] Sudha et al(6.57%),[7] Chate et al (23.65%).[8]

In 95.5% cases ectopic pregnancy was tubal. Commonest site for ectopic pregnancy was ampulla in present study accounting for 62.9% cases followed by cornua and fimbria in 14.6% and 13.4% cases respectively. Similarly, reported in Chate et al[8] study i.e. ampulla in 51.61%, fimbria in 19.3%.

Sudha et al[7] reported ampullary pregnancies in 63.15% cases, cornual in 13.15% cases fimbrial in 16% cases.

In the present study, the incidence of rupture ectopic was 79% cases, followed by unruptured ectopic pregnancies in 21% cases. Similarly, reported in Chate et al[8] study i.e. ruptured ectopic 76.35%. Gaddadi R et al[6] reported that 78.3% cases showed a ruptured ectopic pregnancy on laparotomy. Sudha et al[7] reported that ruptured ectopic was present in 66.66% cases on laparotomy.

In present study right sided ectopic pregnancies (58.1%) were more than left sided ectopic pregnancies (41.9%). In Sudha et al[7] study right sided tubal pregnancy was present in 64% cases and left tubal involvement in 36% cases.

In present study, more than 750ml blood loss was observed in 30.3% cases of ectopic pregnancies.

In the present study, unilateral salpingectomy was done in 63.5% cases. In Sudha et al[7] study it was 90%, in Chate et al[8] study it was 75.2%. Shetty et al[9] observed the most common surgery done was unilateral salpingectomy in 90.3% cases.

In present study, ruptured haemorrhagic ovarian cysts were found in 2 cases, simple ovarian cyst was found in 2 cases, 1 case was found to have ovarian torsion and 2 cases had negative laparotomy.

Medical management was done in 1 case successfully with single dose Methotrexate.

Morbidity included anaemia, blood transfusion and wound infection.

In the present study Maternal mortality rate is zero consistent with Sudha et al[7] study and A, Abbas and H. Akram study.[14]

Conclusion

In order to reduce maternal morbidity and mortality and improve treatment success rates, clinicians should be aware that any woman in the reproductive age group who presents with lower abdominal pain or vaginal bleeding should be suspected of having an ectopic pregnancy,

regardless of whether she has undergone sterilization or not.

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